

# PATENT SPECIFICATION

DRAWINGS ATTACHED

1,164,597



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Date of Application and filing Complete Specification: 25 April, 1968.

No. 19694/68.

Application made in Italy (No. 16525) on 26 May, 1967.

Complete Specification Published: 17 Sept., 1969.

Index at acceptance:—A4 K(2A2, 2A6D)

International Classification:—A 46 b 15/00

## COMPLETE SPECIFICATION

### Improvements in and relating to Tooth Brushes

I, RAFFAELE TIPALDI, of Italian nationality, of Via G.G. Mora 9—Milan, Italy, do hereby declare the invention for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to toothbrushes.

A normal toothbrush has a fixed handle, which makes it difficult or inconvenient to clean the teeth vertically, and thus difficult to clean the gaps between the teeth. A brush according to the invention removes this drawback.

The invention consists in a toothbrush comprising a head supporting bristles, and rotatably mounted at substantially its mid-point on a handle for movement about an axis substantially perpendicular to the head between positions in which the head is respectively substantially aligned with, and substantially perpendicular to, the handle, and finger-operable means mounted in the handle for rotating the brush head.

The head may be interchangeable, i.e. able to be detached and replaced, as well as allowing a change of position of the head in relation to the handle in such a way as to be able to use it also vertically for cleaning the dental interstices.

In view of the aforesaid features the bristle head can be adjusted in position in relation to the handle, allowing use of that which is best suited for the purpose contemplated, that is to say the horizontal position in line with the handle, or a perpendicular position in relation to said handle, (the latter facilitating convenient and efficient cleaning of the gaps between the teeth).

The invention will now be described with reference to the attached drawing illustrating one embodiment of the invention.

Figures 1, *a*, *b*, *c*, *d* illustrates one form of brush in accordance with the invention, *a* and *b* representing front views in different adjusted settings, and *c* and *d* representing corresponding rear views:

Figure 2 represents in front view a handle, and in front and side views a washer used in the brush shown in Figure 1:

Figure 3 represents in side view the components of the brush shown in Figure 1 in exploded positions: and

Figure 4 represents in side view, partly in section, the components of Figure 3 when assembled.

Referring to the aforesaid drawings one convenient form of toothbrush in accordance with the invention comprises a handle 1 having in its front face a channel 2 terminating at its forward end in a circular recess 3 at the end of the handle, and at its rearward end in a widened slotted recess 4, about midway along the length of the handle. A brush head 5, with bristles 6 has a rear stud 7 which fits rotatable in a circular aperture 8 through the handle, centrally of the recess 3. A fixing washer 9 engages in a peripheral channel of the stud 7 to hold the brush head to the handle. The washer 9 is rotatably housed on the upper face of the end of the handle (Figure 4). Four grooves 10 form a square round the stud 7 in the face of the brush head, and recesses formed at the corners of this square can receive the intumed end 11 of a control wire or rod 12 slidably mounted in the channel 2. A finger-button 13 slidable on the front face of the handle 1 has a projection 14 extending into the recess 4, and an intumed end of the wire 12 engages in a hole 16 in the side of the projection 14. A coverpiece 15 fits into the channel 2 to screen the wire 12.

When the button 13 is moved in its slot,

- by finger operation by a user of the brush, the brush head can be rotated, with the stud, by the control rod 12, between the two positions, 90° apart, illustrated in Figure 1, and the brush can be used in either of these two settings according to the wish of the user.

- It should be understood that the invention is not restricted solely to the details of the form described above, which may be modified to meet various conditions or requirements encountered, without departing from the scope of the invention, as defined in the appended claims.

#### WHAT I CLAIM IS:—

- 15 1. A toothbrush comprising a head supporting bristles, and rotatably mounted at substantially its mid-point on a handle for movement about an axis substantially perpendicular to the head between positions in which the head is respectively substantially aligned with, and substantially perpendicular to, the handle, and finger-operable means mounted in the handle for rotating the brush head.
- 20 2. A toothbrush as claimed in Claim 1 comprising a slidable button on the handle connected to the brush head.
- 25 3. A toothbrush as claimed in Claim 2 comprising a control wire or rod extending be-

tween the button and an eccentric point on the brush head.

4. A toothbrush as claimed in Claim 1, 2 or 3 wherein the connecting means for rotating the brush head are housed in a channel of the handle.

5. A toothbrush as claimed in Claim 4 comprising a cover for the channel.

6. A toothbrush as claimed in any preceding claim wherein the head is provided with a stud rotatably fitted in a hole in the handle.

7. A toothbrush as claimed in Claim 6 wherein the head is held to the handle by a spring washer engaging the stud.

8. A toothbrush as claimed in Claim 6 or 7 comprising grooves in the brush head around the stud, for engagement by a control wire or rod adapted to rotate the brush head.

9. A toothbrush with rotatably mounted head, substantially as described herein with reference to the accompanying drawings.

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Printed for Her Majesty's Stationery Office by the Courier Press, Leamington Spa, 1969.

Published by the Patent Office, 25, Southampton Buildings, London, W.C.2, from which copies may be obtained.

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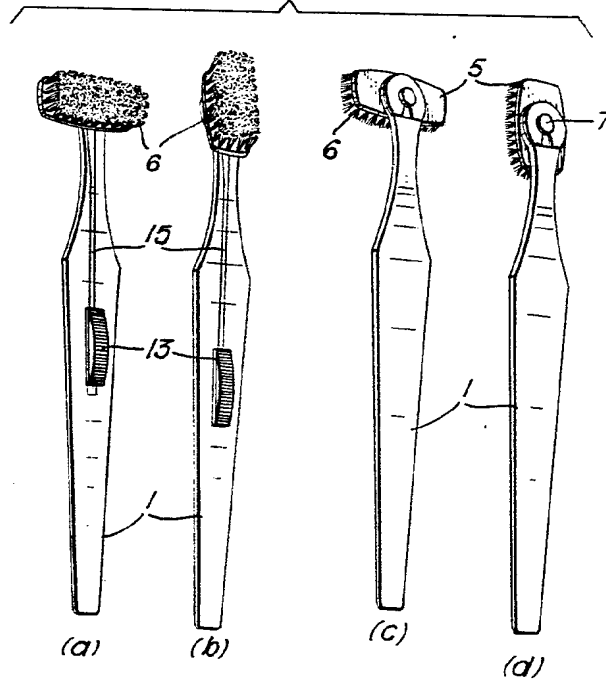
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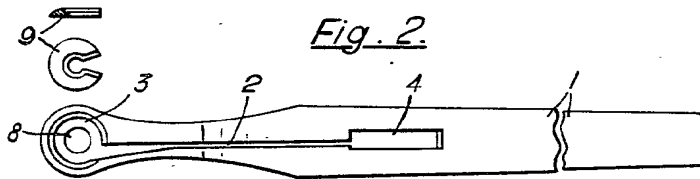
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Sheet 1

*Fig. 1.*



*Fig. 2.*



## COMPLETE SPECIFICATION

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Fig. 3 and Fig. 4 are cross-sectional views of a mechanical assembly. Fig. 3 shows a side view with components labeled 1 through 16. A long, thin member 1 is positioned at the top. Below it, a series of components are stacked: 4, 12, 2, 11, 3, 5, 6, 10, 7, 15, 14, 13, and 16. A circular component 10 is shown in a separate view below the main assembly. Fig. 4 shows a similar side view, but with a different arrangement of components, including 1, 4, 12, 14, 16, 13, 15, 10, 9, 7, 5, and 6. Arrows indicate the direction of movement or force applied to the components.

Fig. 4.